

SPINDLE OR WORM DRIVE FOR ADJUSTING DEVICES IN MOTOR VEHICLES**Publication number:** WO9951456**Publication date:** 1999-10-14**Inventor:** TAUBMANN WERNER (DE); MACHT ALWIN (DE); SCHRIMPL BERNHARD (DE); LIEBETRAU MATTHIAS (DE)**Applicant:** BROSE FAHRZEUGTEILE (DE); TAUBMANN WERNER (DE); MACHT ALWIN (DE); SCHRIMPL BERNHARD (DE); LIEBETRAU MATTHIAS (DE)**Classification:**- international: **B60N2/02; B60N2/22; B60N2/44; B60N2/02; B60N2/22; B60N2/44;** (IPC1-7): B60N2/02

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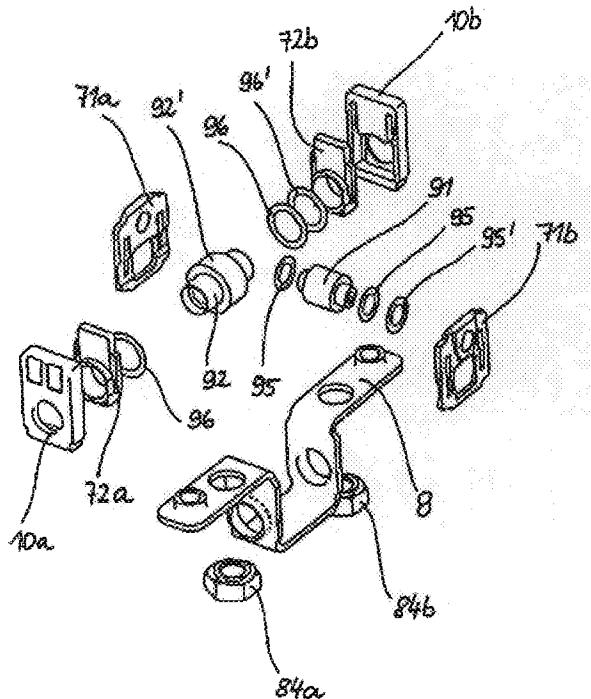
Cited documents:


- DE3007102
- WO8606036
- US5267717
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The invention relates to a spindle or worm drive for adjusting devices, especially seat adjustment devices, window lifters and sliding roofs, in motor vehicles. The inventive drive consists of a fixed spindle or relatively fixed toothed rack which is secured to the first of two parts that can be adjusted in relation to each other and to a gear which is secured to the second of said two parts. The gear elements (91; 92; 92') are mounted in a housing (7) which consists of at least two plates (71a; 71b; 72a; 72b) that can be secured to each other by means of plug-type connectors. Said connectors are also configured as supporting joints that absorb the forces of the gear.



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Locker-blaze worm drive < RTI ID=1.1> für< /RTI> Adjusting devices in Motor vehicles description the invention relates to one locker-blaze worm drive < RTI ID=1.2> für< /RTI> Adjusting devices in motor vehicles after the generic term of the claim < RTI ID=1.3> 1.< /RTI>

From the DE-OS 17 55 740 a Spindelantrieb is < RTI ID=1.4> für< /RTI> an adjusting device at a motor vehicle seat admits. The motor vehicle seat is here fastened on two parallel sliding rails, which < on at the vehicle floor arranged; RTI ID=1.5> Füh < /RTI> rungsschienen run. Parallel to each sliding rail and with this drehfest connected one threaded spindle each is arranged.

Beside the stationary guide rails and with this solid connected a Getriebeblock is stored, which takes up a link body and a one arranged on the threaded spindle with this combing drive snail. The drive snails of each Getriebeblocks stand with a common driving motor in connection. The Getriebeblock consists of two parts, which are bolted with one another.

If the driving motor becomes actuated, however the drive snails the link bodies are rotated. Since the threaded spindle is drehfest arranged, thereby the threaded spindle becomes and with this connected vehicle seating relative to the Getriebeblock and thus to the vehicle floor shifted.

This solution < the disadvantage; RTI ID=1.6> dass< /RTI> the Getriebeblock in its preparation is costly. The Getriebeblock is too < RTI ID=1.7> largely, < /RTI> so that this cannot be arranged for the example within the tracks.

From the DE 40 21 669 A1 a casing is < RTI ID=2.1> für< /RTI> an electrical auxiliary drive admits, which exhibits two half shells, which are held together by means of flexible fixed brackets.

From the DE 43 24 913 Cl a casing is < RTI ID=2.2> für< /RTI> an electrical actuating drive admits, which consists of a housing bowl and a frame cover, which are connected on the one hand however flexible snatching elements and which on the other hand however < itself; RTI ID=2.3> zusätzliche< /RTI> Supporting places < together; RTI ID=2.4> abstützen.< /RTI>

< RTI ID=2.5> Aufgabe< /RTI> the invention consists of it, < RTI ID=2.6> Getriebegehäu < /RTI> SE < RTI ID=2.7> für< /RTI> one locker-blaze worm drive < RTI ID=2.8> für< /RTI> Adjusting devices in motor vehicles to develop, that < RTI ID=2.9> kostengün < /RTI> rose producible and be mounted can. The gearbox is to be small and compact and permit so the installation within the tracks, whereby nevertheless < RTI ID=2.10> gewährleistet< /RTI> to be that in case of the blocking of the transmission the vehicle seating into a position will proceed can, its lining must < RTI ID=2.11> ermöglicht.< /RTI>

This task is < thereby; RTI ID=2.12> solved, < /RTI> the fact that the transmission elements in a gearbox store which from at least two by means of plug and socket connections fastened together < RTI ID=2.13> housing < /RTI> exists plates, whereby the plug and socket connections simultaneous < as basic, those; RTI ID=2.14> Getriebekräfte< /RTI> taking up joints serve and according to are more fixed trained. As threaded spindle trained transmission element is <

▲ top thereby according to; RTI ID=2.15> Ansprüchen< /RTI> 34 to 42 preferably < RTI ID=2.16> über< /RTI> at least one break section in at least an holding held, and at least an end of the threaded spindle is designed as form closure element, which can be connected with a turning tool, in order to overcome the break section as tack of the emergency manipulation.

The invention < the advantage; RTI ID=3.1> dass< /RTI> the value of the transmission opposite comparable transmissions to be substantially reduced can, since those < RTI ID=3.2> Befestigung< /RTI> the particulars < RTI ID=3.3> housing < /RTI> divide serving plug and socket connections simultaneous also for the admission of transmission forces are suitable. Thus the use is < RTI ID=3.4> erfundsgemäßen< /RTI> Transmission also < RTI ID=3.5> für< /RTI> Motor vehicle seats < RTI ID=3.6> possible, < /RTI> with those the seat on very narrow splints is stored, and/or. it is < RTI ID=3.7> Möglichkeit< /RTI> opened to change over to narrow rail guidance.

In a preferential embodiment of the invention it is intended that by means of the plug and socket connections the situation of the housing plates is fixed in all directions in space to each other. This adjustment of the housing plates knows z. B. via caulking the material in the range of the plug and socket connections, via laser welding or pouring the plug and socket connections as well as via gluing of the plug and socket connections take place. Further features can < for this; RTI ID=3.8> Ansprüchen< /RTI> 27 to 33 to be taken, which refer to a method for the assembly of the gearbox.

Furthermore it is favourable, if the housing plates are together fastened exclusively to the plug and socket connections mentioned. Thereby with a minimum of expenditure a basic connection between the einzelnen is < RTI ID=3.9> Gehäusetei < /RTI> len production; it is not necessarily separate means of mounting on the one hand and the admission of transmission forces serving < RTI ID=3.10> Stützstellen< /RTI> to plan on the other hand.

The preparation of the transmission is profitable also with small numbers of items. Manufacturing costs are saved, since the Gehäuseteile and the tools are economically producible. After the assembly of the casing < RTI ID=3.11> erübrigts< /RTI> itself a rework of the housing plates.

The application type of the transmission are < RTI ID=3.12> gross.< /RTI> In particular by its value and its small weight it can < RTI ID=4.1> for drives to be used, for itself the inset derartig< /RTI> ger transmissions so far does not < RTI ID=4.2> möglich< /RTI> was.

In the following the invention is on the basis < RTI ID=4.3> Ausführungsbei < /RTI> play more near to be described. The pertinent designs have the following meaning: Figure 1-Perspektivische display locker energy of an impulse (display of a side of the storing of the Vehicle seating); Figure 2-Gewindespindel with transmission including stops rung; Figure 3-Halterung < RTI ID=4.4> für< /RTI> a transmission; Figure 4-Explosivdarstellung of the transmission inclusively Holding; Figure 5-Darstellung of the transmission in the assembled Condition; Figure < RTI ID=4.5> 6-Gehäuseplatte< /RTI> with Lagerbohrung < RTI ID=4.6> für< /RTI> Drive snail; Figure < RTI ID=4.7> 7-Gehäuseplatte< /RTI> with Lagerbohrung < RTI ID=4.8> für< /RTI> Spindle courage more ter; Figure 8-Darstellung of one < RTI ID=4.9> L-förmigen< /RTI> < RTI ID=4.10> Gehäuseplatte< /RTI> ; Figure 9-Darstellung of one < RTI ID=4.11> U-förmigen< /RTI> < RTI ID=4.12> Gehäuseplatte< /RTI> in Connection with disk-shaped casings a plate; Figure 10-storage of the threaded spindle with one quetschba ren thread element as anti-rotation device and to < RTI ID=4.13> Notbetätigung< /RTI> ; Figure 11-storage of the threaded spindle with one quetschba passages ren; Figure 12-Lagerung of the threaded spindle with however one Lock nut struttet thread element as twist lock; Figure 13-Lagerung of the threaded spindle with one situation-fix ten nut, however the lock nut on that Threaded spindle is struttet; Figure 14-Lagerung of the threaded spindle with a Verdrehsi cherung from plastic; Figure 15-Schnittdarstellung von Figur 14; Figure 16-Darstellung of an anti-rotation device of the threads spindle with a plastic safety device; Figure 17-Verdrehsicherung of the threaded spindle < RTI ID=5.1> über< /RTI> one Welding squeezing nut/mother with spacer sleeve; Figure 18-Prinzipskizze of an adjustment drive with one Rack and figure 19-Darstellung of a Spindelantriebs < RTI ID=5.2> für< /RTI> a Fen more sterheber.

As evident from the figure 1, a retaining plate is < RTI ID=5.3> 1< /RTI> an upper rail 3 assigned. At the retaining plate 1 are mounting straps 1a; < RTI ID=5.4> 1b< /RTI> < RTI ID=5.5> für< /RTI> the driving motor 2 intended, so that the driving motor 2 is connected solid with the retaining plate 1 and with it solid with the upper rail 3.

The upper rack here of the not represented vehicle seating is fastened on the upper rail 3.

Reciprocally at the driving motor 2 propeller shafts 21 and 22 are arranged. Preferably for this flexible shafts are used. These propeller shafts 21; 22 makes the connection to a transmission 9, its situation, construction and function is further down more near described.

The upper rail 3 slides directly or < RTI ID=6.1> über< /RTI> not represented Verstell-und/or camp elements on a Unterschiene 4 specified at the vehicle floor.

In function situation of the upper rail 3 and Unterschiene 4 these are < by their; RTI ID=6.2> contact bzw.< /RTI> Storage ranges so held that a cavity 31 results. Within this cavity 31 a threaded spindle 5 is arranged, whereby this < between mounting plates; RTI ID=6.3> 6a< /RTI> and < RTI ID=6.4> 6b< /RTI> one takes up, which are arranged on the Unterschiene 4 solid. The connection between the mounting plates 6a; 6b takes place however attaching nuts 6c; 6d; < RTI ID=6.5> 6c'; < /RTI> 6d'.

The threaded spindle 5 cooperates with the transmission 9, which is likewise in the cavity 31 arranged and stationarily in the upper rail 3 stored. This arrangement is shown in figure 2. The transmission 9 is < in one; RTI ID=6.6> U-förmigen< /RTI> Holding 8 held, which is connected with here the not represented upper rail 3 solid. Between the thighs 86a; 86b of the mounting plates 8 and the transmission 9 are uncoupling elements 10a; 10b < RTI ID=6.7> inserted, < /RTI> in order to decouple developing noises and adjust tolerances.

A further arrangement of the storing of the transmission 9 consists of it, these in the upper rail 3 however an elongated holding < RTI ID=6.8> 8 ' zu< /RTI> realize. This holding is shown in the figure 3. Here the not represented transmision 9 is stored the analog kind shown in figure 2 in the transmission photograph part of 81 of the holding 8 '. The thighs 82a; 82b of the holding < RTI ID=6.9> 8 ' sind< /RTI> to the upper rail fastens 3. In < RTI ID=6.10> Ausführungsbeispiel< /RTI> these are with the upper rail 3 screw. From this reason the thighs point < RTI ID=7.1> 82a< /RTI> ; 82b < RTI ID=7.2> Befestigungsöffnungen< /RTI> 83 up, with in figure 1 the represented < RTI ID=7.3> Befestigungsöffnungen< /RTI> 30 in the upper rail 3 corresponds. < RTI ID=7.4> Befestigungsöffnungen< /RTI> 83 is assigned to welding nuts/mothers 84, that is < RTI ID=7.5> , the Schweißmuttern< /RTI> 84 is < on; RTI ID=7.6> Öffnungen< /RTI> welded. The welding nuts/mothers 84 point toward the cavity 31. In place of the welding nuts/mothers 84 also unit nuts/mothers or punching nuts/mothers are applicable. Another < RTI ID=7.7> Möglichkeit< /RTI> consists of it, instead of nuts < RTI ID=7.8> Durchzüge< /RTI> to manufacture, which can be provided with an internal thread. Also combinations described of the above < RTI ID=7.9> Möglichkeiten< /RTI> are applicable. By this connection and/or. Screw connection of the holding < RTI ID=7.10> 8 ' mit< /RTI> the upper rail 3 their rigidity is improved. By the arrangement of the welding nuts/mothers 84 specified above and/or. < RTI ID=7.11> Durchzüge< /RTI> It is < RTI ID=7.12> possible, < /RTI> to install the transmission 9 with the holding 8 ' before completely and this unit into the cavity 31 of the rail guidance 3 already installed; to push in 4. < RTI ID=7.13> Über< /RTI> < RTI ID=7.14> Befestigungsöffnungen< /RTI> 83 and the upper rail 3 with the holding 8 can be bolted '.

The mounting plates 8; 8 ' points in a further arrangement target deformation being 87a; 87b up, those between thighs 86a; 86b of the transmission admission 81 and the thighs 82a; 82b of the holding 82a; 82b are arranged. These target deformation being 87a; 87b can in the simplest case according to dimensioned < RTI ID=7.15> Schweissnähte< /RTI> its. In addition, it is < RTI ID=7.16> possible, < /RTI> as target deformation being 87a; 87b angle or other profiles in this place < RTI ID=7.17> einzusetzen.< /RTI> All these elements are dimensioned in such a way that these only during a given target load giving way and only then the thighs 86a; 86b and/or. the transmission admission 81 is

deformed. That happens then in such a way that with < RTI ID=7.18> Überschreiten</RTI> a given maximum critical load the thighs 86a; 86b < RTI ID=7.19> seitwärts</RTI> swivel and the threaded spindle 5 block. In the Crashfall < RTI ID=7.20> trägt</RTI> to an additional fuse of the vehicle seating.

The two thighs 82a; 82b of the holding < RTI ID=8.1> 8 ' sind</RTI> bent and point in the angle angles 85a; 85b a material widening up, which fills out the cavity 31 as far as possible. Thus can the rigidity of the rail guidance, which < RTI ID=8.2> is called </RTI> their resistor against nicking, to be improved. < RTI ID=8.3> Verhakung</RTI> 3 with the Unterschiene 4 remains for the upper rail in the interference.

In the thighs 82a; 82b brought in bores 88a; 88b serve the centring of the holding < RTI ID=8.4> 8 ' zur</RTI> Upper rail 3, for example not represented < through here; RTI ID=8.5> Blindnieten.</RTI> In the thighs the 86a; 86b arranged < RTI ID=8.6> Durchzüge</RTI> 89a; 89b increase the critical cross section of the support angle 8 ' and contribute to a safe power transmission in the Crashfall.

As evident from the figure 4, the transmission consists 9 of a drive snail 91, which < RTI ID=8.7> Über</RTI> < RTI ID=8.8> äussere</RTI> Snail teeth 92 ' of a Spindelmutter 92 in interference stands. The drive snail 91 is however the propeller shaft 21; 22 with the driving motor 2 connected (see for this figure 1). The link body 92 is < RTI ID=8.9> Über</RTI> it internal threads of the threaded spindle 5 assigned.

To the impact of the apparatus: The driving motor 2 turns transfers its movement in such a way however the input shaft 21; 22 on the drive snail 91. This conveys its rotary motion on the link body 92. Since the threaded spindle 5 is drehfest, < RTI ID=8.10> muss</RTI> the transmission 9 and thus with this connected upper rail 3 including motor vehicle seat a translatorische movement implement (see for this figure < RTI ID=8.11> 1). </RTI>

In the figure 4 in an explosive representation the structure of the transmission 9 is shown. It is to be seen that the transmission elements, consisting of a drive snail 91 and a link body 92 in the housing plates 71 A; 71 b; 72a; 72b one < RTI ID=8.12> Getriebegehäuses</RTI> 7 is stored. In the figure 5 the transmission 9 is shown in the assembled condition. It is to be recognized that the drive snail 91 however Lagerbohrungen 73a and 73b < in; RTI ID=9.1> Gehäuseplatte</RTI> 71a and 71b are stored, while the link body 92 in Lagerbohrungen 74a and 74b of the housing plate 72a and 72b are stored. < RTI ID=9.2> Für</RTI> the axial approach of the link body 92 and the drive snail 91 discs 95 and 96 are intended, to axial play reconciliation serve shaft disks < RTI ID=9.3> 95 ' ; 96 '. </RTI>

From the figures 6.7.8 and 9 is < RTI ID=9.4> möglicher</RTI> Structure < RTI ID=9.5> erfindungsgemässen</RTI> Gearbox 7 evidently. As recognizable in the figures 5 to 7, this consists itself here of ever two < RTI ID=9.6> opposite, </RTI> disk-shaped < RTI ID=9.7> Gehäuseplat </RTI> ten 71a; 71b; 72a; 72b, whereby the housing plates into the single representation in accordance with the figures 6 and 7 with < in each case; RTI ID=9.8> Bezugszeichen</RTI> 71 and/or. 72 is provided. The housing plates 71a; 71b; 72a; 72b are preferably manufactured from a sinter material; in addition, there is other materials, as < RTI ID=9.9> Cast materials, </RTI> Steel or also plastic applicable. < RTI ID=9.10> Gehäuseplatten</RTI> 71a; 71b; 72a; 72b are manufactured on their gauge blocks. That concerns also the Lagerbohrungen 73a; 73b; 74a; 74b, their situation in the housing plates 71a; 71b; 72a; 72b and also their fit tolerances.

The belonging together, opposite < RTI ID=9.11> Gehäuseplat </RTI> ten 71a; 71b and 72a; 72b are identical in their form.

A pair points, in < RTI ID=9.12> Ausführungsbeispiel</RTI> are < it; RTI ID=9.13> Gehäuseplatten</RTI> 72a; 72b as bars of 76 trained ranges up, those at the edges of the housing plates 72a; 72b arranged are, thus itself along the level of the housing plates 72a; 72b extend. Opposite the pages 761; 761 ' of the bars 76 is either < RTI ID=9.14> parallel</RTI> trained, conical or possess scraping ribs run.

In the boundary regions of the housing plates 71a; 71b are corresponding in addition, as if < RTI ID=9.15> durchgehende</RTI> < RTI ID=9.16> Öffnungen</RTI> trained recesses 75 transverse to the level of the housing plates 71a; 71b arranged. These recesses 75 point to the pages 761; 761 ' of the bars 76 parallel < RTI ID=10.1> Flächen</RTI> 752 ; < RTI ID=10.2> 752 ' auf.</RTI>

Other one < RTI ID=10.3> mögliche</RTI> Remark forms of the housing plates are shown in the figures 8 and 9. It concerns once two < RTI ID=10.4> L-förmige</RTI> Housing plates 77a; 77b.

This < RTI ID=10.5> L-förmige</RTI> Housing plate 77a; 77b carry bars at one of their thighs < RTI ID=10.6> 76 ' , </RTI> the analog described above < RTI ID=10.7> Ausführungsbeispiele</RTI> with recesses < RTI ID=10.8> 75 ' korrespondieren.</RTI>

The appropriate Lagerbohrungen 73 ' and 74 ' are, as described already above, brought into the housing plates.

In the figure 9 one < RTI ID=10.9> Getriebegehäuse</RTI> shown, from one < RTI ID=10.10> U-förmigen</RTI> < RTI ID=10.11> Gehäuseplatte</RTI> 78 and one this assigned < RTI ID=10.12> scheibenförmige</RTI> < RTI ID=10.13> Gehäuseplatte</RTI> 79 exists. The thighs < RTI ID=10.14> U-förmige</RTI> Likewise bars carry housing plate 78 < RTI ID=10.15> 76 " , </RTI> into appropriate recesses < RTI ID=10.16> 75 " scheibenför </RTI> mige housing plate 79 intervene.

The assembly the bars become 76; < RTI ID=10.17> 76 ' ; 76 " in</RTI> the recesses 75; 75' ; 75 " put. < RTI ID=10.18> Masse</RTI> the recesses 75; < RTI ID=10.19> 75 ' ; 75 " und</RTI> Bars 76; < RTI ID=10.20> 76 ' </RTI> ; 76 " is co-ordinated, < so; RTI ID=10.21> dass</RTI> after < RTI ID=10.22> Montageverfahren</RTI> either clearance fits or tight fits to be formed can. After plugging together the situation of the recesses 75 and the bars 76 and thus the situation of the drive snail 91 to the link body 92 are fixed and thereby < RTI ID=10.23> endgültig</RTI> specified, as the material within the range of the plug and socket connections plastic is deformed.

The assembly of the gearbox 7 can be supported by automatic operational sequence or replaced fully. That becomes now following on the basis disk-shaped housing plates 71a; 71b; 72a; 72b describes. The assembly < RTI ID=10.24> L-förmigen</RTI> Housing plates 77 and < RTI ID=10.25> U-förmigen</RTI> Housing plates 78 and/or. 79 analog

takes place. For this the transmission elements (Antriebsschnecke 91, link body 92 become; Discs 95; 96, shaft disks < RTI ID=11.1> 95 ' </RTI> ; 96 ') inclusively; 96 ') including the casing < RTI ID=11.2> (Gehäuseplatten </RTI> 71 ; 72) pre-mounted. < RTI ID=11.3> is called </RTI> the transmission elements are < in; RTI ID=11.4> dafür</RTI> intended Lagerbohrungen put in and the housing plates 71; 72 are plugged together.

This pre-mounted transmission 9 is inserted now into combined Halte-und caulk mechanism, which seizes the transmission 9 at its outer contour. Holding takes place toward the level of the housing plates 72a; 72b, whereby < RTI ID=11.5> Retaining forces, </RTI> at the four corners < RTI ID=11.6> Gehäuseplatte</RTI> 71a or 71b attack, to be kept relatively small.

The transmission 9 is now moved, as the drive snail 92 is preferably turned. At least a revolution must take place. The housing plates 71a; 71b; 72a; 72b can align themselves so spanning-free. After execution of this movement the retaining forces become amplified, so that the transmission elements 91; 92 and housing plates 71a; 71b; 72a; 72b in this situation is prevented to be held and slipping. A lifting tool reaches now into the range of the plug and socket connections, which < RTI ID=11.7> is called </RTI> into the contact points between the bars 76; < RTI ID=11.8> 76 ' and 76 " und</RTI> the recesses 75; < RTI ID=11.9> 75 ' and 75 " und</RTI> deformed in these places the material plastic. The strain takes place in such a way that thereby the material forms so the situation of the housing plates 71a for the example Hinterschnitte and; 71b; 72a; 72b end< to each other; RTI ID=11.10> gültig</RTI> are fixed.

Around a deformation of the Lagerbohrungen 74a; 74b of the link body 92 to avoid, takes place < RTI ID=11.11> Verstemmung</RTI> not however the entire length of the plug and socket connections. It is < only within the range a caulk; RTI ID=11.12> accomplished, </RTI> where a Ein< RTI ID=11.13> fluss</RTI> the forces on the stock area of the link body 92 in < RTI ID=11.14> Gehäuseplatte</RTI> 72 and thus a deformation of the Lagerbohrungen 74 to be excluded can do.

The adjustment of the housing plates 71a; 71b; 72a; 72b can take place also via the fact that the material within the range of the plug and socket connections under inset of the laser technology is welded. A further < RTI ID=12.1> Möglichkeit</RTI> consists of it, the situation of the housing plates 71; 72 by Vergießen to each other the material in the range of the plug and socket connections to fix.

Another arrangement of the method consists of the fact that the revolution of the transmission elements takes place to tack of the directing with a higher speed. It is appropriate to work with the rated speed or with one however this lying speed of the transmission. By it the developing < RTI ID=12.2> Kreiselkräfte</RTI> hold during the movement the situation of the transmission elements 91; 92 to each other stably, so that the adjustment can take place here during the movement.

The storing of the threaded spindle 5 can be out-arranged still going by further that the mounting plates 6a; 6b (see figure 2) of the threaded spindle 5 anti-vibration bushings (here not represented) or < RTI ID=12.3> ähnliche</RTI> Devices are assigned.

Of course the construction of the plug and socket connections is not < on in the figures the 5 to 9 represented variants; RTI ID=12.4> beschränkt.</RTI> So the plug and socket connections can be formed by pencils or bolts, at one to the connecting < RTI ID=12.5> Gehäusetelle</RTI> is intended and into an appropriate recess of the other portion intervenes, or by a groove-and-tongue connection, whereby to the production of a form closure and/or. an all-round grip a dove tail groove or a T-groove is suitable particularly, but in principle also one < RTI ID=12.6> U-förmige</RTI> Groove or such a thing in question comes. Furthermore a multiplicity is form< RTI ID=12.7> schlüssiger</RTI> Schlitzverbindungen conceivable.

An arrangement of the invention consists of equipping the storage of the threaded spindle 5 with an emergency manipulation. That is necessarily, over < in case of a defect of the transmission 9 unscrewing the threaded spindle 5 too; RTI ID=13.1> ermöglicht</RTI> llchen. Thus the motor vehicle seat can be moved also in this case, which < RTI ID=13.2> für</RTI> its lining necessarily is, there the screw connection of the holding 6a; 6b with the Unterschiene 4 by the upper rail 3 covered its < RTI ID=13.3> könne</RTI> nen. If one wants to solve the screw connection, must be proceeded therefore the upper rail 3 to the Unterschiene 4. For this, the storage of the threaded spindle at at least an holding 6a is intended; 6b with a break section to equip and the threaded spindle 5 at at least an end provided with form closure element 52 too, in case of application with a tool < RTI ID=13.4> erfasst</RTI> and to be turned can. In the figures 10 to 17 such remarks are shown.

In the figure 10 an execution shown, with which for example a thread element 60 is used, at its extent the one is < RTI ID=13.5> Materialschwächung</RTI> as circulating groove exhibits 61. In addition, other material attenuations are < RTI ID=13.6> possible, </RTI> like z. B. Grooves o. < RTI ID=13.7> a.</RTI> The thread element 60 is with one of the mounting plates 6a; 6b < RTI ID=13.8> verschweisst.</RTI> In order to train a break section, within the range of the groove 61 the material with the threaded spindle 5 is squeezed. Takes place itself at two facing points of attack (see arrows), whereby a one-sided squeezing also < RTI ID=13.9> möglich</RTI> is.

In case of the emergency manipulation the threaded spindle 5 is rotated and so retaining strength of the squeezing is < RTI ID=13.10> überwunden.</RTI>

As thread elements 60 are for example < RTI ID=13.11> Sweat, </RTI> Stanzoder sheet metal nuts applicable, stoff- bzw. < RTI ID=13.12> kraftschlüssig</RTI> ge connections with the material are received.

In figure 11 a simple variant is shown. Here thread element 60 becomes a passage 62 in the holding 6a instead of; 6b manufactured, which with a thread to sew on ME of the threaded spindle 5 will provide. The passage 62 is squeezed with the threaded spindle 5 (see arrows).

Figure 12 shows one < RTI ID=14.1> Solution, </RTI> with the analog to the variant shown in figure 10 a thread element < RTI ID=14.2> 60 ' mit</RTI> the holding ä; 5b is welded. This thread element 60 ' is struttured by a lock nut 63. In case of the emergency manipulation the lock nut 63 can < RTI ID=14.3> gelöst</RTI> and so the threaded spindle 5 to be turned.

In figure 13 one is < RTI ID=14.4> ähnliche< /RTI> Solution shown. A nut 64 does not become with the holding 6a however here; 6b ver< RTI ID=14.5> welds, < /RTI> separate positive < RTI ID=14.6> über< /RTI> an abutment 6e held, that at the holding 6a; 6b is attached. The spanning effected likewise < RTI ID=14.7> über< /RTI> a lock nut 63.

As break section is here at least < RTI ID=14.8> Schweißpunkt< /RTI> 60a between the nut 64 and the threaded spindle 5 intended.

The figures 14 and 15 show one < RTI ID=14.9> Solution, < /RTI> with the one lock plate 65 is arranged, which exhibits a latch 65a, which secures a nut 64 arranged between the holding 6a and the lock plate 65 ' in its situation.

As break section one is preferably used here from plastic manufactured anti-rotation device 66. This is < with their; RTI ID=14.10> Aussenkontur< /RTI> positive inserted into a screw pillar mounting hole 65b of the lock plate 65. The form closure is < here by at least at the extent of the anti-rotation device 66 angeformtes; RTI ID=14.11> Formschlussel< /RTI> ment 66a reaches, which corresponds with an appropriate aperture 65c in the screw pillar mounting hole 65b. The anti-rotation device 66a is drehfest connected with the threaded spindle 5, by a square attached at the end of the threaded spindle 5 and/or, geometrically differently a trained element into the internal contour 66b of the anti-rotation device corresponding in addition seizes.

In case of < RTI ID=15.1> Notbetätigung< /RTI> the threaded spindle 5 including the anti-rotation device 66 is rotated, which to the Zer< RTI ID=15.2> störung< /RTI> the anti-rotation device 66 < RTI ID=15.3> führt.< /RTI> Thus the threaded spindle 5 can be moved.

Figure 16 shows another application type < RTI ID=15.4> für< /RTI> an anti-twist plate element from plastic. Hier wird in eine Ge<RTI ID=15.5>windespindel-Aufnahmehöfnnungen</RTI> both mounting plates 6a; 6b a plastic safety device 67a in-formed, in such a manner that the circular cross section < RTI ID=15.6> Aufnahmehöfnnung< /RTI> received, the width b of the plastic safety device remains however < for 67; RTI ID=15.7> grösser< /RTI> as the diameters D < RTI ID=15.8> Aufnahmehöfnnung< /RTI> 67 is. The squeezing and thus the construction of the break section take place via forces toward the arrows. Thus one < RTI ID=15.9> Möglichkeit< /RTI> production that the threaded spindle can transfer 5 both Zug-und of compressive forces and against twisting is secured.

In case of < RTI placed plastic tie-clips to be reached, which are fastened separately when the assembling of the motor vehicle seat on the threaded spindle.

Around described the above < RTI ID=16.1> Notbetätigung< /RTI> implement to be able, must (with exception of the example described to figure 16) to the twisting of the threaded spindle 5 their end with a tool < RTI ID=16.2> erfasst< /RTI> become. For this must the end of the threaded spindle 5 with an accordingly trained < RTI ID=16.3> Formschlussel< /RTI> ment 52 provided its. That can take place for example, by being one-sided or bilaterally flattened or as inside or an external multi-Kant, preferably a square, is intended.

The inset described of the above < RTI ID=16.4> erfundungsgemässen< /RTI> Transmission is not < only on; RTI ID=16.5> Betätigung< /RTI> a threaded spindle 5 < RTI ID=16.6> beschränkt.< /RTI> The inset of a rack is likewise < RTI ID=16.7> möglich.< /RTI> Figure 18 shows schematically the arrangement of a such equipment, which < within; RTI ID=16.8> erfundungsgemässen< /RTI> Gearbox 7 is arranged. The drive snail combs < RTI ID=16.9> 91 ' mit< /RTI> a worm wheel 93 that axially with a screw 94 solid is connected. The screw 94 is with the indentation of a rack 51 in interference.

A rotary motion is < by the rotary motion here of the not represented driving motor on the drive snail; RTI ID=16.10> 91 ' übertragen.< /RTI> This moves the worm wheel 93 and thus the screw 94, which < to a relative motion between the rack 51 and the transmission; RTI ID=16.11> führt.< /RTI> With this equipment likewise a seat adjustment device can and/or, a window lifter or also different adjusting device in a motor vehicle to be operated.

In the figure 19 a principle sketch is shown, from which one < one; RTI ID=16.12> Möglichkeit< /RTI> < RTI ID=16.13> für< /RTI> the tray of the invention for the drive of a window lifter at a vehicle door to infer knows. As in the figure 19 to be seen, a Fensterschei becomes 12 between two guide rails 131; 132 held, which are arranged at one side each of the vehicle door. At the lower edge 12 ' of the windowpane 12 however a support rail 14 a window lifter engine 15 is arranged, that < RTI ID=17.1> über< /RTI> a cable is supplied with stream. The propeller shaft 23 of the window lifter engine 15 is connected with the transmission 9. The structure of the transmission 9 was already described on the basis the figure 4 more near. < RTI ID=17.2> is called < /RTI> innerhalb des <RTI ID=17.3>Getriebegehäu- </RTI> ses 7 is here a not represented drive snail, which < RTI ID=17.4> über< /RTI> a link body with the one threaded spindle < RTI ID=17.5> 5 ' im< /RTI> Interference stands. The threaded spindle 5 is however support angle 161; 162 drehfest to the door interior sheet metal 17 fastens. The axle of the threaded spindle 5 must show toward the direction of motion of the windowpane 12.

If the window lifter engine 15 turns, then one < RTI ID=17.6> über< /RTI> here the not represented drive snail the link body turned. Since the threaded spindle 5 is drehfest ', the solid with one another connected unit from transmission 9, window lifter engine 15 and windowpane 12 must move along the axle of the threaded spindle 5 '. The windowpane becomes 12 in the guide rails 131; 132 < RTI ID=17.7> geführt.< /RTI>

The use of the invention is not limited to the examples described above < RTI ID=17.8> für< /RTI> < RTI ID=17.9> Betätigung< /RTI> the Sitz< RTI ID=17.10> längsverstellung< /RTI> and the window lifter drive. It is further < RTI ID=17.11> possible, < /RTI> the invention < RTI ID=17.12> für< /RTI> Locker-blaze worm drives for adjusting < RTI ID=17.13> Seat level, < /RTI> the seat inclination, which < RTI ID=17.14> Cushion depth adjustment, < /RTI> < RTI ID=17.15> Sitzlehnenverstellung< /RTI> and the displacement < RTI ID=17.16> Kopfstütze< /RTI> to begin.

Reference symbol list 1 retaining plate 10a; < RTI ID=18.1> 10b Entkopplungselement< /RTI> IIa; < RTI ID=18.2> IIb Befestigungslaschen< /RTI> 12 windowpane 12 lower edge of the windowpane 131; < RTI ID=18.3> 132 Führungsschienen< /RTI> 14 support rails 15 window lifter engine < RTI ID=18.4> 151 Kabel< /RTI> 161 ; < RTI ID=18.5> 162 Halbewinkel< /RTI> 2 driving motor 21; 22 propeller shaft 24 input shaft 3 upper rail < RTI ID=18.6> 30 Befestigungsöffnung< /RTI> 31 cavity 4 Unterschiene 5; 5 ' threaded spindle 51 rack 52 form closure element 60; 60 '

thread element < RTI ID=18.7> 60a Schweißpunkt< /RTI> 61 groove 62 passages 63; 63 ' lock nut 64; 64 ' nut 65 lock plate 65a latch 65b screw pillar mounting hole 65c aperture 66 anti-rotation device < RTI ID=18.8> 66a Formschlüssellement< /RTI> 66b internal contour of the anti-rotation device < RTI ID=18.9> 67 Gewindespindel-Aufnahmeöffnung</RTI> 67a plastic safety device 68 special squeezing nut/mother 6a; 6b mounting plates 6c; 6d; < RTI ID=18.10> 6c'& lt; /RTI> ; 6d'Befestigungsmutter 6e abutment 7; < RTI ID=18.11> 7 ' Getriebegehäuse< /RTI> 71a; < RTI ID=18.12> 71b Gehäuseplatten< /RTI> 72a; < RTI ID=18.13> 72b Gehäuseplatten< /RTI> 73a; 73b Lagerbohrungen 74a; 74b Lagerbohrungen 75; 75' ; 75 " recesses 76; 76' ; 76 " bars 761; 762 bars < RTI ID=18.14> 77 L-shaped housing plate 78 u-shaped Gehäuseplatte< /RTI> 79 disk-shaped housing plate 8 holding 81 transmission admission 82a; 82b thigh of the holding 83 attachment openings < RTI ID=19.1> 84 nut 85 Winkelbereiche< /RTI> 86a; 86b thigh of the transmission admission 87a; 87b target deformation being 9; 9 ' transmissions 91 drive snail 92 link body < RTI ID=19.2> 92 ' Schneckenradverzahnung< /RTI> 93 worm wheel 94 screw 95; < RTI ID=19.3> 95 ' ; < /RTI> 96 ; 96 ' wave ring



Claims of WO9951456

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Claims < RTI ID=20.1> 1. < /RTI> Locker-blaze worm drive < RTI ID=20.2> für < /RTI> Adjust-a-smell-do towards in motor vehicles, especially < RTI ID=20.3> für < /RTI> Sitzverstel flax directions, window lifters and sun roofs, with a being certain spindle or a being certain Rack, which is fastened to first other parts adjustable of two relatively zuein, with one Transmission, which is arranged to second that of placable parts relatively to each other, and with a transmission housing for the admission of the transmission, thereby characterized, < RTI ID=20.4> dass < /RTI> < RTI ID=20.5> Getriebegehäuse < /RTI> (7) from at least two by means of Plug and socket connections fastenable < together; RTI ID=20.6> Gehäuseplat < /RTI> ten (71; 72 ; 71a; 72a; 72b; 77a; 77b; 78 ; 79) exists, whereby the plug and socket connections place simultaneous as basic, taking up the transmission forces connection are trained.

2. Drive according to claim 1, characterized thus, < RTI ID=20.7> dass < /RTI> by means of the plug and socket connections the situation < RTI ID=20.8> Gehäuseplat < /RTI> ten (71; 72 ; 71a; 71b; 72a; 72b; 77a; 77b; 78 ; 79) to each other is fixed in all directions in space.

3. Drive according to claim 1 or 2, characterized thus, < RTI ID=20.9> dass < /RTI> the housing plates (71; 72 ; 71a; 71b; 72a; 72b; 77a; 77b; 78 ; 79) exclusively to the Steckverbindun are towards together fastened.

4. Drive after one the leading < RTI ID=20.10> Claims, < /RTI> there by characterized, < RTI ID=20.11> dass < /RTI> < RTI ID=20.12> Getriebegehäuse < /RTI> (7) from two < RTI ID=21.1> L-förmigen < /RTI> Housing plates (77a; 77b) or from at least two pairs oppositely < RTI ID=21.2> scheibenförmig < /RTI> ger housing plates (71a; 71b; 72a; 72b) exists, whereby each other in pairs assigned the housing plates (71a; 71b; 72a; 72b) are preferably identically trained.

5. Drive after one < RTI ID=21.3> Ansprüche < /RTI> 1 to 3, ge by the fact marks that < RTI ID=21.4> Getriebegehäuse < /RTI> (7) from one < RTI ID=21.5> U-förmigen < /RTI> (78) and a disk-shaped < RTI ID=21.6> Gehäuseplat < /RTI> width unit (79) exists.

6. Drive after one the leading < RTI ID=21.7> Claims, < /RTI> there by characterized that itself the raised ranges (76; < RTI ID=21.8> 76 ' ; 76 ") < /RTI> the plug and socket connections along the level of the housing plates (72; 72a; 72b; 77 ; 78) and the assigned recesses (75; < RTI ID=21.9> 75 ' ; 75 ") < /RTI> transverse to the level of the housing plates (72; 72a; 72b; 77 ; 78) extend.

7. Drive according to claim 6, characterised in that the recesses as continuous < RTI ID=21.10> Öffnungen < /RTI> (75 ; < RTI ID=21.11> 75 ' ; < RTI ID=21.12> 75 ") < /RTI> are trained.

8. Drive according to claim 6, characterized thus, < RTI ID=21.13> dass < /RTI> the raised ranges as bars (76; < RTI ID=21.14> 76 ' ; 76 ") < /RTI> ausge forms ls.

▲ top 9. Drive after one < RTI ID=21.15> Ansprüche < /RTI> 6 to 8, ge thus marks, < RTI ID=21.16> dass < /RTI> the raised ranges (76; < RTI ID=21.17> 76 ' ; 76 ") < /RTI> the plug and socket connections when assembly assembling parallel < RTI ID=21.18> Flächen < /RTI> (761 ; 762 ; < RTI ID=21.19> 761 ' ; 762 ') < /RTI> exhibit, those < RTI ID=21.20> passge < /RTI> naue recesses (75; < RTI ID=21.21> 75 ' ; 75 ") < /RTI> with likewise in Assembly direction parallel < RTI ID=22.1> Flächen < /RTI> (751 ; 752 ; < RTI ID=22.2> 751 ' ; < RTI> < RTI ID=22.3> 752 ') < /RTI> are assigned.

10. Drive after one < RTI ID=22.4> Ansprüche < /RTI> 6 to 8, ge thus marks, < RTI ID=22.5> dass < /RTI> the raised ranges (76; < RTI ID=22.6> 76 ' ; 76 ") < /RTI> the plug and socket connections when assembly assembling conical verlau fende surfaces exhibit, which recesses < RTI ID=22.7> (75< /RTI> ; < RTI ID=22.8> 75 ' ; < RTI> 75 ") with if necessary when assembly assembling parallel Surfaces (751; 752) are assigned, so that with that Assembly a tight fit is formed.

11. Drive after one < RTI ID=22.9> Ansprüche < /RTI> 6 to 8, ge thus it marks that the raised ranges (76; < RTI ID=22.10> 76 ' ; 76 ") < /RTI> the plug and socket connections with the recesses (75; < RTI ID=22.11> 75 ' ; < RTI> 75 ") first a clearance fit forms and that those Adjustment of the housing plates (72a; 72b; 77 ; 78) by plastic deforming of the material within the range that Plug and socket connections takes place.

12. Drive after one of the leading claims, there by characterized that the housing plates (72a; 72b; 77 ; 78) from a sinter material, one < RTI ID=22.12> Cast material, < /RTI> Steel or plastic is manufactured.

13. Drive after one the leading < RTI ID=22.13> Claims, < /RTI> there by characterized, < RTI ID=22.14> dass< /RTI> at least a part of the supports place (73; 73a; 73b; 74 ; < RTI ID=22.15> 74 ' ; 74" ; 74a< /RTI> ; 74b) the Ge of driving elements (91; < RTI ID=22.16> 91 ' ; < /RTI> 92 ; 93 ; 94) into the Gehäuseplat ten (72a; 72b; 77 ; 78) are integrated.

14. Drive after one the leading < RTI ID=22.17> Claims, < /RTI> there by characterized, < RTI ID=22.18> dass< /RTI> the transmission (9) from a Ge winding spindle (5), a link body (92) with an outside worm gear teeth (92) and one thereby in
Interference standing drive snail (91) exists.

15. Drive after one the leading < RTI ID=23.1> Claims, < /RTI> there by characterized that the transmission (9) from one
Rack (51), one this assigned screw (94) with worm wheel (93) and a drive snail < RTI ID=23.2> (91 ') < /RTI> exists, whereby the screw (94) with the Schnek lies kenrad (93) on an axle and is connected with this solid,

16. Drive after one the leading < RTI ID=23.3> Claims, < /RTI> there by characterized that the threaded spindle (5) in Cavity (31) of a box-profile-like guide rail (3; 4) a seat lengthwise adjustment is arranged, whereby the threaded spindle (5) < RTI ID=23.4> über< /RTI> their ends to the vehicle-solid Unterschiene (4) and the gearbox (7) at the upper rail (3), adjustable in addition, befe rose is.

17. Drive according to claim 16, characterised in that the gearbox (7) in one < RTI ID=23.5> U-förmigen< /RTI>
Transmission on (81) stores, its thigh (82a) would take to an holding (8); 82b) to the fixing of the transmission < RTI ID=23.6> (9) < /RTI> at that
Upper rail (3) are intended.

18. Drive according to claim 16 and 17, thus identified-calibrate net, < RTI ID=23.7> dass< /RTI> itself the thighs (82a; 82b) however the holding (8) extend and < the entire length of the upper rail (3); RTI ID=23.8>
Befestigungsöffnungen< /RTI> (83) carry, which Befesti gungsöffnungen (30) the upper rail (3) are assigned, so that the holding (8) with the upper rail (3) is connectable and this reinforced.

19. Drive according to claim 16 to 18, thus Identified-calibrate net that < RTI ID=24.1> Befestigungsöffnungen< /RTI> (83) the holding < RTI ID=24.2> (8 ') < /RTI> as internal thread-basic fastening elements (84), preferably in the form of Durchzügen, are trained, which rise up into the cavity (31).

20. Drive according to claim 16 to 19, thus Identified-calibrate net that the transmission (9) < completely pre-mounted and in the holding; RTI ID=24.3> (8 ') < /RTI> built into the cavity (31) < RTI ID=24.4> Schienenführung< /RTI> (3 ; 4) insertable and < RTI ID=24.5> über< /RTI> the Befe increase openings (83) with the upper rail (3) is screwable.

21. Drive after one < RTI ID=24.6> Ansprüche< /RTI> 16 to 20, ge thus marks, < RTI ID=24.7> dass< /RTI> the final ranges (85a; 85b) the stops rung < RTI ID=24.8> (8 ') < /RTI> bent and in such a manner trained are < RTI ID=24.9>
dass< /RTI> these the free cross section of the upper rail (3) and/or the Unterschiene (4) as far as possible fill out.

22. Drive after one the leading < RTI ID=24.10> Claims, < /RTI> there by characterized, < RTI ID=24.11>
dass< /RTI> to the noise uncoupling and to tolerance reconciliation between the transmission (9) and that
Thighs (86a; 86b) the transmission admission (81) that
Holding (of 8) uncoupling elements (10a; praise) from rubber or plastic is arranged.

23. Drive after one the leading < RTI ID=24.12> Claims, < /RTI> there by characterized, < RTI ID=24.13>
dass< /RTI> between the thighs (86a;
86b) the transmission admission (81) and the thighs (82a;
82b) the holding < RTI ID=25.1> (8 ') < /RTI> Target deformation being (87a;
87b) are trained, so that with < RTI ID=25.2> Überschreiten< /RTI> a given maximum critical load the thighs (86a;
86b) < RTI ID=25.3> seitwärts< /RTI> swivel and the thread pin del (5) block.

24. Drive after one the leading < RTI ID=25.4> Claims, < /RTI> there by characterized that to the noise uncoupling those
Ends of the threaded spindle (5) in anti-vibration
Bushings or such a thing are stored.

25. Drive after one the leading < RTI ID=25.5> Claims, < /RTI> there by characterized, < RTI ID=25.6> dass< /RTI>< RTI ID=25.7> für< /RTI> a window lifter the Ge< RTI ID=25.8> in such a way winding spindle (5 ') in the motor vehicle door befestigt< /RTI> is, < RTI ID=25.9> dass< /RTI> the threaded spindle (5 ') in movement-smell tung the windowpane (12) points, and < RTI ID=25.10> dass< /RTI> with that
Threaded spindle < RTI ID=25.11> (5 ') < /RTI> in connection standing transmissions < RTI ID=25.12> (9 ') < /RTI> directly or indirect with that the lower edge (12) of the windowpane (12) is connected.

26. Drive after one the leading < RTI ID=25.13> Claims, < /RTI> there by characterized, < RTI ID=25.14>
dass< /RTI> that locker-blaze Schneckenan drove a component of an adjusting device < RTI ID=25.15> für< /RTI>< RTI ID=25.16> Seat level, < /RTI> the seat inclination, the cushion depth, which < RTI ID=25.17> Kopfstütze< /RTI> and/or the seat-back is.

27. Method for the assembly of a gearbox < RTI ID=25.18> für< /RTI> one
Locker-blaze worm drive after the leading < RTI ID=25.19> Claims, < /RTI> thus characterized, < RTI ID=25.20>
dass< /RTI> the Getriebele mente (91; 92 ; 93 ; 94) and housing plates (72a; 72b;
77 ; 78) completely to be pre-mounted and into an apparatus inserted, the casing (7) at its < RTI ID=25.21> outside
< /RTI> outline with small retaining forces < RTI ID=25.22> seized, < /RTI>< RTI ID=25.23> dass< /RTI> the Getrie beelemente (91; 92 ; 93 ; 94) to tack of the directing of the bearings (73a; 73b; 74a; 74b) it is turned and that after
the directing through < RTI ID=26.1> Erhöhung< /RTI> the stops of forces the situation of the transmission elements (91; 92 ; 93 ; 94) and housing plates (72a; 72b; 77 ; 78) festge will hold and their situation to each other is finally

fixed.

28. Method for the assembly of a gearbox < RTI ID=26.2> für< /RTI> that Locker-blaze to worm drive according to claim 27, there by characterized that the transmission elements (91; 92 ; 93 ; 94) over at least < RTI ID=26.3> 360 < /RTI> turned, afterwards in this Situation to be held and fixed.

29. Method for the assembly of a gearbox < RTI ID=26.4> für< /RTI> that Locker-blaze to worm drive according to claim 27, there by characterized that the transmission elements (91; 92 ; 93 ; 94) with a speed to be propelled, those < RTI ID=26.5> über< /RTI> the rated speed of the transmission (9) is appropriate, and during the rotation of the transmission elements (91; 92 ; 93 ; 94) those Situation of the housing plates (72a; 72b; 77 ; 78) to be fixed to each other.

30. Method for the assembly of a gearbox < RTI ID=26.6> für< /RTI> that Locker-blaze to worm drive according to claim 27, there by characterized that the adjustment < RTI ID=26.7> Gehäuseplat < /RTI> ten (72a; 72b; 77 ; 78) by caulking the material within the range of the plug and socket connections, but outside of the Range of the Lagerbohrungen (74a; 74b) < RTI ID=26.8> für< /RTI> the spindle nut/mother (92) takes place.

31. Method for the assembly of a gearbox < RTI ID=26.9> für< /RTI> that Locker-blaze to worm drive according to claim 27, there by characterized, < RTI ID=26.10> dass< /RTI> the adjustment of the Gehäuseplat ten (72a; 72b; 77 ; 78) by laser welding or through Pour the plug and socket connections effected.

32. Method for the assembly one < RTI ID=27.1> Getriebegehäuses< /RTI> < RTI ID=27.2> für< /RTI> that Locker-blaze to worm drive according to claim 27, there by characterized that the adjustment < RTI ID=27.3> Gehäuseplat < /RTI> ten (72a; 72b; 77 ; 78) via gluing of the Steckverbundun towards takes place.

33. Method for the assembly of a gearbox < RTI ID=27.4> für< /RTI> that Locker-blaze to worm drive according to claim 27, there by characterized that holding the outer contour of the housing plates (72a; 72b; 77 ; 78), the twisting that Transmission elements (91; 92 ; 93 ; 94) and caulking the plug and socket connections in a combined assembly before direction takes place.

34. Spindelantrieb < RTI ID=27.5> für< /RTI> Adjusting devices into strength-drive witness, with that a threaded spindle (5) drehfest zwi schen two final lateral mounting plates (6a; 6b) clamped, whereby a link body arranged in a transmission is assigned to the threaded spindle, characterised in that the threaded spindle (5) is however minde stens a break section in at least holding rung < RTI ID=27.6> (5a< /RTI> ; 6b) it is fastened and that at least an end of the threaded spindle < RTI ID=27.7> (5) < /RTI> as < RTI ID=27.8> Formschlusselement< /RTI> (66a) is trained, which with a turning tool be connected can, around the break section as Tack < RTI ID=27.9> Notbetätig< /RTI> the drive too < RTI ID=27.10> überwinden.< /RTI>

< RTI ID=27.11> 35. < /RTI> Spindelantrieb according to claim 34, thus < RTI ID=27.12> gekennzeich < /RTI> net, < RTI ID=27.13> dass< /RTI> thread element (60), as < RTI ID=27.14> örtliche< /RTI> MA < RTI ID=27.15> terialschwächung< /RTI> a groove (61) exhibits, with one that Mounting plates (6a; < RTI ID=28.1> 6b) < /RTI> welded and the Gewindeele is ment (60) < RTI ID=28.2> über< /RTI> this material attenuation with the threads spindle (5) is squeezed.

36. Spindelantrieb according to claim 34, thus < RTI ID=28.3> gekennzeich < /RTI> net that the thread element < RTI ID=28.4> (60 '')< /RTI> on of the Hal terung (6a; 6b) turned away side for delimitation < RTI ID=28.5> Verfahrweges< /RTI> the upper rail (3) on the Unterschiene (4) a spacer sleeve (69) exhibits.

37. Spindelantrieb according to claim 34, thus identified-calibrate net that for the admission of the threaded spindle (5) one that Mounting plates (6a; 6b) a passage (62) exhibits, which is squeezed in at least one place with the threaded spindle (5).

38. Spindelantrieb according to claim 34, thus identified-calibrate net that thread element (60) with one of the stops rungen (6a; 6b) and this for fixing the situation of the threaded spindle (5) is welded a lock nut (63) is assigned.

39. Spindelantrieb according to claim 34, thus identified-calibrate net that a nut (64) <, the positive; RTI ID=28.6> über< /RTI> one Abutment (6e) at one of the mounting plates (6a; 6b) in it is held, with the threaded spindle (5) in at least one place is in such a manner welded that those Welded joint (60a) as break section is trained.

40. Spindelantrieb according to claim 34, thus < RTI ID=28.7> gekennzeich < /RTI> It net that one preferably drehfest from plastic manufactured, on the threaded spindle (5) arranged rotates safety device (66) positive into one screw pillar on taking drilling (65b) of a lock plate (65) einge puts is, whereby the anti-rotation device (66) with that Emergency manipulation of the threaded spindle (5) is destroyed.

41. Spindelantrieb according to claim 34, thus identified-calibrate net that the lock plate (65) over a latch (65a) on the threaded spindle (5) arranged, the situation of the threaded spindle (5) secure the position of one the nut (64 ') fixed.

42. Spindelantrieb nach Anspruch 34, dadurch gekennzeich net, dass in eine <RTI ID=29.1>Gewindespindel-Aufnahmeöffnungen</RTI> (67) of both mounting plates (6a; 6b) eine Kunststoffsicherung (67a) eingeförm ist, derart, dass der kreisrunde Quer schnitt der <RTI ID=29.2>Gewindespindel-Aufnahmeöffnungen</RTI> (67) it to hold remains < and the width b of the plastic safety device (67a); RTI ID=29.3> grösser< /RTI> as the diameters D of the threaded spindle

Photograph openings (67) is, whereby in case of < RTI ID=29.4> Notbetä < /RTI> tigung the plastic safety device (67a) removable is < and the threaded spindle; RTI ID=29.5> (5) < /RTI> into the freed area auswei chen can.